

**IMAGING SYSTEM USING THETA-THETA COORDINATE STAGE  
AND CONTINUOUS IMAGE ROTATION TO COMPENSATE FOR  
STAGE ROTATION**

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**Abstract of the Disclosure**

A method for controlling a theta-theta coordinate stage moves an object relative to an imaging system. While moving the object, the object image is rotated to compensate for object rotation. Orientations of features in the image are preserved, and removal of apparent rotation in the image reduces operator  
10 confusion while directing movement of the object. Angular velocity of the object motion is controlled so that image shift speed is independent of the radial position of the point being viewed. An edge detector measures the edge position of the object while the theta-theta coordinate stage rotates the object. A prealignment process determines position and orientation of the object from  
15 measured edge positions. A further alignment process uses automated pattern recognition to identify features on the object when the image is rotated so that orientations of the feature are approximately known.